

Claims

1. A catalyst composition comprising the reaction product of an alkoxide or condensed alkoxide of a metal M, selected from titanium, zirconium, hafnium, aluminium, or a lanthanide, an alcohol containing at least two hydroxyl groups, a 2-hydroxy carboxylic acid and a base, wherein the molar ratio of base to 2-hydroxy carboxylic acid is in the range 0.01 – 0.79:1.
2. A catalyst composition as claimed in claim 1, wherein the alcohol is selected from the group consisting of 1,2-ethanediol, 1,2-propanediol, 1,3-propanediol, 1,4-butane diol, diethylene glycol and a polyethylene glycol.
3. A catalyst composition as claimed in either claim 1 or claim 2, wherein the 2-hydroxy carboxylic acid comprises lactic acid, citric acid, malic acid or tartaric acid.
4. A catalyst composition as claimed in any of the preceding claims, wherein the molar ratio of acid to metal in the reaction product is from 1 to 4 moles acid per mole of metal M.
5. A catalyst composition as claimed in any of the preceding claims, wherein the base comprises sodium hydroxide, potassium hydroxide, ammonium hydroxide, lithium hydroxide, sodium carbonate, magnesium hydroxide, calcium hydroxide, aluminium acetate, zinc oxide, caesium carbonate or ammonia.
6. A catalyst composition as claimed in any of the preceding claims, wherein the metal M is selected from titanium and zirconium.
7. A process for the preparation of an ester comprising carrying out an esterification reaction in the presence of a catalyst composition as claimed in any of the preceding claims.
8. A process as claimed in claim 7 wherein said esterification reaction comprises the reaction of an acid or anhydride selected from stearic acid, isostearic acid, capric acid, caproic acid, palmitic acid, oleic acid, palmitoleic acid, triacontanoic acid, benzoic acid, methyl benzoic acid, salicylic acid, phthalic acid, isophthalic acid, terephthalic acid, sebacic acid, adipic acid, azelaic acid, succinic acid, fumaric acid, maleic acid, naphthalene dicarboxylic acid, pamoic acid, trimellitic acid, citric acid, trimesic acid, pyromellitic acid and anhydrides of these acids with an alcohol selected from butyl, pentyl, hexyl, octyl and stearyl alcohols, 2-ethylhexanol, glycerol and pentaerythritol.
9. A process as claimed in claim 7 wherein said esterification reaction is a polyesterification reaction comprising the reaction of one or more polybasic acids or esters of polybasic acids one or more polyhydric alcohols to produce a polymeric ester.

10. A process as claimed in claim 9, wherein said polyesterification reaction comprises the reaction of terephthalic acid or dimethyl terephthalate with 1,2-ethanediol (ethylene glycol) to produce polyethylene terephthalate, with 1,3-propane diol to form poly(trimethylene)terephthalate, or with 1,4-butanediol (butylene glycol) to produce polybutylene terephthalate (PBT) or the reaction of naphthalene dicarboxylic acid with 1,2-ethanediol to produce polyethylene naphthalate (PEN).